In the claims: the claims are as follows:

1. (currently amended) A method for improving coding efficiency in audio coding, wherein an audio signal is encoded for providing parameters indicative of the audio signal, the parameters including pitch contour data containing a plurality of pitch values representative of an audio segment in time, said method comprising ~~the steps of~~:

creating, based on the pitch contour data, a plurality of simplified pitch contour segment candidates, each candidate corresponding to a sub-segment of the audio signal, wherein each sub-segment has a start-point pitch value and an end-point pitch value and each candidate has a start segment point and an end segment point, and wherein the start segment points of at least some candidates are different from the start-point pitch values of the corresponding sub-segments and the end segment points of at least some candidates are different from the end-point pitch values of the corresponding sub-segments;

measuring deviation between each of the simplified pitch contour segment candidates and said pitch values in the corresponding sub-segment;

selecting, among said candidates, a plurality of consecutive segment candidates to represent the audio segment based on the measured deviations and one or more pre-selected criteria; and

coding the pitch contour data in the sub-segments of the audio signal corresponding to the selected segment candidates with characteristics of the selected segment candidates.

2. (currently amended) The method of claim 1, wherein the pitch contour data in the audio segment in time is approximated by a plurality of selected candidates, corresponding to a plurality of consecutive sub-segments in said audio segment, each of said plurality of selected candidates defined by a first end point and a second end point, and wherein said coding comprises ~~the step of~~ providing information indicative of the end points so as to allow [[the]] a decoder to reconstruct the audio signal in the audio segment based on the information instead of the pitch contour data

3. (original) The method of claim 1, wherein the number of pitch values in some of the consecutive sub-segment is equal to or greater than 3.

4. (original) The method of claim 1, wherein said creating is limited by a pre-selected condition such that the deviation between each of the simplified pitch contour segment candidates and each of said pitch values in the corresponding sub-segment is smaller than or equal to a pre-determined maximum value.

5. (original) The method of claim 4, wherein the created segment candidates have various lengths, and said selecting is based on the lengths of the segment candidates, and the pre-selected criteria include that

the selected candidate has the maximum length among the segment candidates.

6. (original) The method of claim 4, wherein said selecting is based on the lengths of the segment candidates, and the pre-selected criteria include that

the measured deviation is minimum among a group of the candidates having the same length.

7. (previously presented) The method of claim 1, wherein said creating is carried out by adjusting the end segment point of the segment candidates.

8. (original) The method of claim 1, wherein the audio signal comprises a speech signal.

9. (original) The method of claim 2, wherein at least one of the selected candidates is a linear segment.

10. (original) The method of claim 2, wherein at least one of the selected candidates is a non-linear segment.

11. (previously presented) A coding device for encoding an audio signal comprising pitch contour data containing a plurality of pitch values representative of an audio segment in time, said coding device comprising:

an input end for receiving the pitch contour data; and

a data processing module, responsive to the pitch contour data, for creating a plurality of simplified pitch contour segment candidates, each candidate corresponding to a sub-segment of the audio signal, wherein each sub-segment has a start-point pitch value and an end-point pitch value and each candidate has a start segment point and an end segment point, and wherein the start segment points of at least some candidates are different from the start-point pitch values of the corresponding sub-segments and the end segment points of at least some candidates are different from the end-point pitch values of the corresponding sub-segments, and wherein the processing module comprises:

an algorithm for measuring deviation between each of the simplified pitch contour segment candidates and said pitch values in the corresponding sub-segment; and

an algorithm for selecting, among said candidates, a plurality of consecutive segment candidates to represent the audio segment based on the measured deviations and pre-selected criteria.

12. (previously presented) The coding device of claim 11, further comprising

a quantization module, responsive to the selected segment candidates, for coding the pitch contour data in the sub-segments of the audio signal corresponding to the selected segment candidates with characteristics of the selected segment candidates.

13. (previously presented) The coding device of claim 12, wherein the quantization module provides audio data indicative of the coded pitch contour data in the sub-segments, said coding device further comprising

a storage device, operatively connected to the quantization module to receive the audio data, for storing the audio data in a storage medium.

14. (original) The coding device of claim 12, further comprising an output end, operatively connected to a storage medium, for providing the coded pitch contour data to the storage medium for storage.

15. (original) The coding device of claim 12, further comprising an output end for transmitting the coded pitch contour data to the decoder so as to allow the decoder to reconstruct the audio signal also based on the coded pitch contour data.

16. (currently amended) A computer software product embodied in an electronically readable medium for use in conjunction with an audio coding device, the audio coding device providing parameters indicative of the audio signal, the parameters including pitch contour data containing a plurality of pitch values representative of an audio segment in time, said software product comprising:

a code for creating a plurality of simplified pitch contour segment candidates based on the pitch contour data, each candidate corresponding to a sub-segment of the audio signal, wherein each sub-segment has a start-point pitch value and an end-point pitch value and each candidate has a start segment point and an end segment point, and wherein the start segment points of at least some candidates are different from the start-point pitch values of the corresponding sub-segments and the end segment points of at least some candidates are different from the end-point pitch values of the corresponding sub-segments, and;

a code for measuring deviation between each of the simplified pitch contour segment candidates and said pitch values in the corresponding sub-segment; and

a code for selecting, among said candidates, a plurality of consecutive segment candidates to represent the audio ~~segement~~ segment based on the measured deviations and pre-selected criteria, so as to allow a quantization module to code the pitch contour data in the sub-segments of the audio signal corresponding to the selected segment candidates with characteristics of the selected segment candidates.

17. (previously presented) A decoder for reconstructing an audio signal, wherein the audio signal is encoded for providing parameters indicative of the audio signal, the parameters including pitch contour data containing a plurality of pitch values representative of an audio segment in time, and wherein the pitch contour data in the audio segment in time is approximated by a plurality of consecutive simplified segments, each simplified segment corresponding to a sub-segment in the audio segment, wherein each of the sub-segments has a start-point pitch value and an end-point pitch value and each of the simplified segments is

defined by a first end point and a second end point, and wherein the first end points of at least some simplified segments are different from the start-point pitch values of the corresponding sub-segments and the second end points of at least some simplified segments are different from the end-point pitch values of the corresponding sub-segments, said decoder comprising:

an input for receiving audio data indicative of the end points defining the sub-segments; and

a reconstructing module, for reconstructing the audio segment based on the received audio data.

18. (original) The decoder of claim 17, wherein the audio data is recorded on an electronic media, and wherein the input of the decoder is operatively connected to electronic media for receiving the audio data.

19. (original) The decoder of claim 17, wherein the audio data is transmitted through a communication channel, and wherein the input of the decoder is operatively connected to the communication channel for receiving the audio data.

20. (previously presented) An electronic device comprising:

a decoder for reconstructing an audio signal, wherein the audio signal is encoded for providing parameters indicative of the audio signal, the parameters including pitch contour data containing a plurality of pitch values representative of an audio segment in time, and wherein the pitch contour data in the audio segment in time is approximated by a plurality of consecutive simplified segments, each simplified segment corresponding to a sub-segment in the audio segment, wherein each of the sub-segments has a start-point pitch value and an end-point pitch value and each of the simplified segments is defined by a first end point and a second end point, and wherein the first end points of at least some simplified segments are different from the start-point pitch values of the corresponding sub-segments and the second end points of at least some simplified segments are different from the end-point pitch values of the corresponding sub-segments, so as to allow the audio segment to be constructed based on the end points defining the simplified segments; and

an input for receiving audio data indicative of the end points and for providing the audio data to the decoder.

21. (original) The electronic device of claim 20, wherein the audio data is recorded in an electronic medium, and wherein said input is operatively connected to the electronic medium for receiving the audio data.

22. (original) The electronic device of claim 20, wherein the audio data is transmitted through a communication channel, and wherein the input is operatively connected to the communication channel for receiving the audio data.

23. (original) The electronic device of claim 20, comprising a mobile terminal.

24. (previously presented) A communication network, comprising:

a plurality of base stations; and

a plurality of mobile stations communicating with the base stations, wherein at least one of the mobile stations comprises:

a decoder for reconstructing an audio signal, wherein the audio signal is encoded for providing parameters indicative of the audio signal, the parameters including pitch contour data containing a plurality of pitch values representative of an audio segment in time, and wherein the pitch contour data in the audio segment in time is approximated by a plurality of consecutive simplified segments, each simplified segment corresponding to a sub-segment in the audio segment, wherein each of the sub-segments has a start-point pitch value and an end-point pitch value and each of the simplified segments is defined by a first end point and a second end point, and wherein the first end points of at least some simplified segments are different from the start-point pitch values of the corresponding sub-segments and the second end points of at least some simplified segments are different from the end-point pitch values of the corresponding sub-segments; and

an input for receiving audio data indicative of the end points from at least one of the base stations for providing the audio data to the decoder.